

Patent Claims

1. A dental implant with:
- 5 a) a bottommost implant tip (1) located at the apex;
- b) a root part (2) which extends to the implant tip (1), is intended to be fitted in a jawbone, and has a parabolic outer contour (A) with the implant tip (1) as vertex;
- 10 c) adjoining the root part (2), an implant neck (3) which extends in the coronal direction and is intended to lie inside the gingiva; and
- d) an outer thread (4) provided on the root part (2),
- 15 characterized in that
- e) the root part (2) has the parabolic outer contour (A) along its entire length (l_{\max}) and as far as a theoretical ridge line (5) at which it adjoins the implant neck (3).
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2. The dental implant as claimed in claim 1, characterized in that
- a) the outer thread provided on the root part (2) has an outer contour extending parallel to the,
- 25 parabolic outer contour (A) of the root part (2), and
- b) ends at a distance of 1 mm to 4 mm from the ridge line (5).
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3. The dental implant as claimed in claim 1 or 2, characterized in that
- a) the root part (2) at the ridge line (5) has the maximum radius (r_{\max}) extending in the radial x-direction;
- 35 b) the parabolic outer contour (A), placed in a cartesian system of x-y coordinates, with the implant tip (1) positioned at the origin, follows the equation $l_y = K \cdot 4r_x^2$, where

c) l_y represents the respective ordinate value and r_x represents the associated abscissa value; and

d) the constant (K) results from the equation:

5 $K = l_{\max} : 4r_{\max}^2.$

10 4. The dental implant as claimed in claim 3, characterized in that the maximum radius (r_{\max}) is between 1 mm and 3 mm, preferably lying in the range of from 1.5 mm to 2 mm.

5. The dental implant as claimed in one of claims 1 through 4, characterized in that

15 a) the outer thread (4) is self-cutting;
b) the length (l_{\max}) of the root part (2) correlates with the pitch (S) of the outer thread (4);

20 c) the outer thread (4) ends at a distance, in the range of from 1 mm to 4 mm, from the ridge line (5); with

d) the distance being greater as the length (l_{\max}) of the root part (2) increases.

25 6. The dental implant as claimed in claim 5, characterized in that the length (l_{\max}) of the root part (2) and the pitch (S) of the outer thread (4), given a maximum radius (r_{\max}) = 2 mm, correlate with one another as follows:

Length (l_{\max}) of root part (2) [mm]	Pitch (S) [mm]
6	0.65
8	1
10	1
14	1
16	1

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7. The dental implant as claimed in one of claims 1 through 6, characterized in that the outer thread

(4) with its thread teeth (40) has the following values:

- 5 a) at the root part (2), and extending in the y-direction, the thread teeth (40) have a height (g_h) in the region of 0.3 mm; and
- b) in the x-direction, the thread teeth (40) have a length (g_l) in the range of from 0.25 mm to 0.5 mm.

- 10 8. The dental implant as claimed in claim 7, characterized in that
- a) the length (g_l) of the thread teeth (40) is smaller as the length (l_{max}) of the root part (2) increases; and
- 15 b) the outer thread (4) with its thread teeth (40) has, given a maximum radius (r_{max}) = 2 mm, the following values:

Length (l_{max}) of root part [mm]	Height (g_h) of thread teeth [mm]	Length (g_l) of thread teeth [mm]
6	0.3	0.4
8	0.3	0.4
10	0.3	0.3
14	0.3	0.25
16	0.3	0.25

- 20 9. The dental implant as claimed in one of claims 1 through 8, characterized in that
- a) the implant is made of biocompatible material having suitable stability properties, for example titanium, titanium-based alloys, other
- 25 metals, their alloys, ceramic, glass ceramic, ceramic-like material or plastic; and
- b) the root part (2) has a rough surface which is plasma-coated or ceramic-coated or is treated chemically, electrochemically, mechanically or
- 30 by laser.

10. The dental implant as claimed in one of claims 1 through 9, characterized in that the implant neck (3)

a) is made of titanium, a titanium-based alloy or another biocompatible metal or its alloy and is polished; or

b) is coated with ceramic, glass ceramic, ceramic-like material, hydroxyapatite, plastic or metal.

11. The dental implant as claimed in one of claims 1 through 10, characterized in that

a) measured in the y-direction, the implant neck (3) has a height (h) in the range of from 1 mm to 3 mm; and

b) the implant neck (3) is cylindrical or is widened or narrowed in a trumpet shape or conically in the coronal direction.